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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/917,025  | 07/27/2001  | William Croasdale    | RAY-122J            | 9659             |
| 7590  | 07/24/2006  |                      | EXAMINER            |                  |
| Iandiorio & Teska<br>260 Bear Hill Road<br>Waltham, MA 02451-1018 |             |                      | YE, LIN             |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2622                |                  |

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/917,025             | CROASDALE, WILLIAM  |  |
|                              | Examiner<br>Lin Ye     | Art Unit<br>2622    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 06 March 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 12-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 12-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/6/06 has been entered.
  
2. Applicant's arguments with respect to claims 12-24 filed on 3/6/06 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
  
4. Claims 12-14 and 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller U.S. Patent 4,794,575 in view of Galante U.S. Patent 3,258,595, Sosoya JP. Publication 06-141211 and Shimura U.S. Patent 6,532,037.

Referring to claim 12, The Miller reference discloses in Figures 1-4 and 6, a buoy system comprising: a buoy including a lengthy hull with a ballast portion of the hull which resides below the waterline and a top portion of the hull which is disposed above the waterline as shown in Figure 4; a workstation (DRU 38 inside of submarine 52) remote from the hull (e.g., for collecting wave-heave data, see Col. 5, lines 55-61); and a transmission cable (36) interconnecting the hull and the workstation (see Col. 4, lines 65-67 and Col. 5, lines 1-11). However, the Miller reference does not explicitly show the buoy is photonic buoy which incorporating camera system.

The Galante reference teaches in Figures 1-4, a photonic buoy (buoy 15 incorporating camera system 54, see Col. 4, lines 3-5 and lines 33-35) comprising: a lengthy hull including a ballast portion of the hull (power plant 16, see Col. 3, lines 35) which resides below the waterline and a top portion of the hull (20, see Col.3, lines 52-55) which is disposed above the waterline; an optical bench (dome-shaped parent material 35, see Col. 4, lines 8-11) including an imager (camera 54) at the top portion of the hull configured to provide view of the horizon; a workstation (remote control station 110 in Figure 4, see Col. 5, lines 68-75) remote from the hull, responsive to the optical bench, and including a display (112) for presenting a image on the display. The Galante reference is evidence that one of ordinary skill in the art at the time to see more advantages for the buoy system is a photonic buoy system so that the system can providing remotely controlled observation means and a visual indication of the entire area about the observation means on the surface (See Col. 1, lines 54-61). For that reason, it would have been obvious one having ordinary skill in the art at the

time of the invention was made to modify the system of the Miller by providing a photonic buoy as taught by Galante.

The Galante reference only mention the camera (54) can zoom, pan and tilt for change field of view of camera (See Col.4, lines 33-40), but the both Miller and Galante references do not explicitly show the optical bench can be configured to provide a **panoramic** view of horizon.

The Sosoya reference teaches in figures 2-3, an optical bench (2) at top potion of the antenna pillar (16) configured to provide a panoramic view of the horizon (the omni direction 360 degrees, see detailed description on [0017]). The Sosoya reference is evidence that one of ordinary skill in the art at the time to see more advantages for the camera system including an optic bench to acquire omnidirectional image at one time, so resultant the omnidirectional image is a real-time image without employing any mechanical means. For that reason, it would have been obvious one having ordinary skill in the art at the time of the invention was made to modify the system of the Mill and Galante by using the optical bench configured to provide a panoramic view of horizon as taught by Sosoya.

The Miller, Galante and Sosoya references do not explicitly show the workstation including an image stabilization circuitry for presenting a composite image of the horizon on the display.

The Shimura reference teaches in Figures 1and 4-7B, a camera system comprises a camera (100) and a panoramic image synthesizing apparatus (200) remote from camera (100) via the communication medium (150). The Panoramic image synthesizing apparatus (200) as a remote workstation includes the image stabilization circuitry (e.g., cylindrical conversion

section 205) for converting a panoramic synthesis image (in Figure 5, without using the image stabilization circuitry 205) to a composite image of horizon as shown in Figure 6 by using the image stabilization circuitry (205) (see Col. 1, lines 46-53, and Col. 4, lines 43-47). The Shimura reference is evidence that one of ordinary skill in the art at the time to see more advantages for the camera system using the image stabilization circuitry for composite the panoramic image of the horizon on the display so that a natural image can be obtained. For that reason, it would have been obvious one having ordinary skill in the art at the time of the invention was made to modify the system of the Miller, Galante and Sosoya by providing an image stabilization circuitry for presenting a composite image of the horizon on the display as taught by Shimura.

Referring to claims 13-14, the Miller reference discloses in Figures 1-2, a ballast portion of the hull (10) includes a first spool of transmission cable (spool 32) and a second spool of transmission cable (spool 34) which connect inside of workstation of submarine (See Col. 4, lines 50-67).

Referring to claim 16, the Sosoya reference includes a conical mirror inside the top portion of the hull (antenna pillar 16) surrounded by a transparent wall (Figure 3 clearly shows the wall is transparent, the light of image from outside A, B, C can directly through the wall to the conical mirror 12a) and a vertically oriented imager (CCD 14) aimed at the conical mirror (12a).

Referring to claim 17, the Miller, Galante, Sosoya and Shimura references do not explicitly state the conical mirror is also conical prism. Official Notice is taken that both the concept and the advantages of providing the optical bench can either use conical mirror or

conical prism to provide a panoramic view of the horizon is well known and expected in the art. It would have been obvious to have more flexible designing options to choice using conical prism or conical mirror to provide omnidirectional image on the optical bench disclosed by Galante (e.g., **It also should be noted that Applicant's failure to adequately traverse the Examiner's taking of Office Notice in the last office action mailed by 12/23/2003 is taken as an admission of the facts noticed.**)

Referring to claim 18 (depends on claims 16 or 17), the Sosoya reference discloses the imager (14) is a CCD camera (See detailed description on [0017]).

Referring to claim 19 (depends on claims 16 or 17), the Galante reference discloses the imager (camera 54) is an infrared camera (see Col. 4, lines 50-60).

Referring to claim 20, the Sosoya reference discloses a sensor (mixer 8) in the hull that detects the attitude to provide orientation information of the video imagery as shown in Figure 5(B) (See [0022]).

Referring to claim 21 (depends on claims 16 or 17), the Miller, Galante, Sosoya and Shimura references do not explicitly states the transmission cable includes optical fibers. Official Notice is taken that both the concept and the advantages of providing the optical fibers in the cable to transmitting the video image to remote location is well known and expected in the art. It would have been obvious to have optical fibers included in the transmission cable in Sosoya as this transmission media is known to provide to high speed and capacity of transmission rate (e.g., **It also should be noted that Applicant's failure to adequately traverse the Examiner's taking of Office Notice in the last office action mailed by 12/23/2003 is taken as an admission of the facts noticed.**)

Referring to claims 22-23, the Miller reference discloses in Figures 1-2, a buoy (10) is launched from the submarine via the after signal ejector, buoyantly ascends to the surface, and then transmits sea surface information back to the submarine via the data link. The buoy (10) includes a self scuttling plug (dissolving plugs 16, see Figure 5 and Col. 5, lines 62-68). The buoy has a diameter compatible with a launcher (ejector 50, see Col. 5, lines 17-31) as shown in Figure 2.

Referring to claim 24, the Galante reference discloses the ballast portion (Power plant 16) includes a weight disposed therein as shown in Figures 1-2.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller U.S. Patent 4,794,575 in view of Galante U.S. Patent 3,258,595, Sosoya JP. Publication 06-141211, Shimura U.S. Patent 6,532,037 and Gove U.S. Patent 5,973,733.

Referring to claim 15, the Miller, Galante, Sosoya and Shimura references disclose all subject matter as discussed in respected claim 12, except the references do not explicitly states the image stabilization circuitry which includes frame rate image processing software and hardware for stabilization instead that remotely controlling mechanical or optical ways for stabilization.

The Gove reference teaches in Figures 1-2, a video camera includes an image stabilization circuitry (28). The stabilization circuitry includes frame rate image processing software (algorithms 52) and hardware (processor 50) for stabilization (See Col. 3, lines 37-53). The Gove reference is evidence that one of ordinary skill in the art at the time to see the camera stabilization circuitry having frame rate image processing software and hardware for

stabilization so that providing a relatively lower cost solution than the mechanical optical ways for stabilization (See Col. 1, lines 36-40 and Col. 2, lines 22-25). For that reason, it would have been obvious one having ordinary skill in the art at the time of the invention was made to modify the system of the Miller, Galante, Sosoya and Shimura by providing frame rate image processing software and hardware for stabilization as taught by Gove.

*Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (571) 272-7372. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2622

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Lin Ye  
Primary Examiner  
Art Unit 2622

July 20, 2006